

Notice of Allowability

Application No.

10/730,049

Examiner

Angela J. Martin

Applicant(s)

NAGAYAMA ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/13/07.
2. ☒ The allowed claim(s) is/are 1-3 and 5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:

The Applicant claims a non-aqueous electrolyte rechargeable battery comprising:

(a) a positive electrode capable of charging and discharging lithium; (b) a negative electrode capable of charging and discharging lithium; (c) a separator or a lithium ion conductive layer interposed between said positive electrode and said negative electrode; and (d) a lithium ion conductive non-aqueous electrolyte, wherein said positive electrode contains a mixture of a first positive electrode active material and a second positive electrode active material, said first positive electrode active material comprises lithium oxide containing manganese, said lithium oxide further contains aluminum and/or magnesium and said second positive electrode active material comprises $\text{Li}_x\text{Co}_{1-y-z}\text{Mg}_y\text{Al}_z\text{O}_2$ where $1 \leq x \leq 1.03$, $0.005 \leq y \leq 0.1$ and $0.001 \leq z \leq 0.02$, wherein the content of the second positive electrode active material in the mixture of the first and second positive electrode active materials is 10 wt% or higher and 40 wt% or lower.

Applicant claims a non-aqueous electrolyte rechargeable battery comprising: (a) a positive electrode capable of charging and discharging lithium; (b) a negative electrode capable of charging and discharging lithium; (c) a separator or a lithium ion conductive layer interposed between said positive electrode and said negative electrode; and (d) a lithium ion conductive non-aqueous electrolyte, wherein said positive electrode contains a mixture of a first positive electrode active material and a second positive electrode active material, said first positive electrode active material

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comprises lithium oxide containing manganese, said lithium oxide further contains aluminum and/or magnesium and said second positive electrode active material comprises $\text{Li}_x\text{Co}_{1-y-z}\text{MgyAl}_z\text{O}_2$, where $1 \leq x \leq 1.03$, $0.005 \leq y \leq 0.1$ and $0.001 \leq z \leq 0.02$, wherein said first positive electrode active material is $\text{Li}_a\text{MnbM}_2\text{-bO}_4$ where M is Al and/or Mg, $1 \leq a \leq 1.2$ and $1.8 \leq b < 2$.

In the prior art of record, Watanabe et al. (JP 2002-319398) discloses a mixture of a first positive electrode active material comprising $\text{Li}_x\text{Co}_y\text{MwO}_z$, in which M is at least one of Al, Cu, Zn, Mg, Ca, Ba and Sr, and wherein $0.02 \leq w \leq 0.15$ and a second positive electrode active material comprising $\text{Li}_a\text{NibM}'\text{cO}_d$, in which M' is at least one of Co, Mn, Cr, Fe, V, or Al, and $0.02 \leq c \leq 0.5$. The second positive electrode active material of the present invention which comprises $\text{Li}_x\text{Co}_{1-y-z}\text{MgyAl}_z\text{O}_2$ where, $0.001 \leq z < 0.02$, falls outside the scope of both the first and the second positive electrode materials disclosed in Watanabe, because the molar amount of Al, is less than 0.02, not equal to or greater than 0.02, as is disclosed in Watanabe. In response, Applicants submitted a Declaration under 37 CFR § 1.132 which contains examples of batteries that are both commensurate in scope of the claimed invention and show unexpected results.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM


RAYMOND ALEJANDRO
PRIMARY EXAMINER